Structure Policy Directive

Number: SPD 1-7

References:

Effective Date: June 30, 2017

Supersedes: NEW

TITLE Bridge Life-Cycle Cost Analysis

DIRECTIVE

In accordance with the California Bridges and Structures Strategic Direction Objective #8 "Balance performance, life-cycle cost, time, delivery, and risk to optimize total value", this Structure Policy Directive (SPD) establishes policy for the inclusion of bridge life-cycle cost analysis (BLCCA) in the delivery of bridge capital projects. BLCCA is required by the *Caltrans Strategic Management Plan (2015-2020)* Goal #2, "Stewardship and Efficiency."

BLCCA is a comparison process that helps identify the most cost-effective alternative over the life of a bridge project. The minimum requirements for BLCCA are:

1) Perform BLCCA at Advance Planning Study (APS) stage when multiple feasible alternatives are developed, and at least one of the alternatives is a bridge replacement (i.e. rehabilitation/retrofit/widening vs. replacement).
2) Perform BLCCA prior to General Plan milestone when multiple feasible alternatives are developed for Type Selection, Seismic Strategy, or Hydraulic Strategy meetings.

Supporting functional units shall include the BLCCA requirements in their guidance and practice by July 1, 2018.

INTENDED RESULTS

The objective of BLCCA is to optimize total value in the decision making, delivery and management of bridges. Decisions must be framed to promote the best value over the life of the bridge and maximize the public's return on investment.

BACKGROUND

The life-cycle cost of a bridge consists of the total investment throughout the life of the bridge. This investment includes the initial construction costs, mitigation costs, repair and rehabilitation costs, all anticipated maintenance costs, and user costs when applicable. The ability to determine the life-cycle cost of a bridge will lead to better decisions on the design, construction and maintenance of new bridges, and on the methods and approaches for rehabilitating existing bridges such that the best overall value is achieved rather than the lowest initial cost.

This Directive is in compliance with the regulations and policies listed below:

1) Federal Regulations under Fast-Act:
   a) *U.S. Code, Title 23, Section 106 - Project Approval and Oversight*
   b) *U.S. Code, Title 23, Section 119 - National Highway Performance Program*

2) Caltrans' Policies:
   a) *Value Analysis (Deputy Directive-92, 2007 & Deputy Directive-92-R1, 2012)*
   b) *Use of Life-Cycle Cost Analyses in Project Decision Making (Deputy Directive-107, 2010)*
   c) *Sustainability Policy (Directors Policy-33, 2015)*

RESPONSIBILITIES

Structure Policy Board Members or Principal Engineers:

- Establish BLCCA policy
- Enforce BLCCA policy compliance
- Advocate continual improvement for BLCCA
- Mandate that BLCCA be included in the project delivery process and in all relevant guidance material

Managers and Supervisors:

- Manage and enforce BLCCA participation and compliance
- Ensure that staff are trained in BLCCA and comply with BLCCA policies and procedures
- Advocate continual improvement of BLCCA practices

Engineer of Record (Project Engineer), Oversight Engineer or Technical Liaison Engineer

- Complies with the requirements of this SPD
- Leads the investigation of life-cycle costs in conjunction with the Bridge Cost Estimator and the Bridge Program Advisor, to help in the selection of the preferred alternative

APPLICABILITY

All staff involved in the delivery of bridge capital projects.

The members of the Structure Policy Board hereby approve this Directive.

APPROVED BY:

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